

SPATIAL DISTRIBUTIONS AND THE NOTION OF SITE TYPOLOGY

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INTRODUCTION

Central to traditional archaeological interpretation has been the categorization and typing of sites based upon observed trends in artifact frequency, diversity, and/or spatial distribution. From these trends, sites are grouped usually on the basis of assumed function. Examples of such functional types include procurement sites or reduction centers; hunting camps; and domestic sites (Gardner 1982). These sites may also be categorized by size: small sites with lower artifact densities and covering more discreet area, are frequently termed “micro-band” camps in the Middle Atlantic region. In contrast, those with high artifact densities, covering more area, and containing more diversified features are referred to as “macro-band” camps (Custer 1989). Notions of site-types such as these have become entrenched to the point that the models are now often viewed uncritically as virtually self-evident. However, a growing understanding of the complexity of the archaeological record provides caveats for simple interpretations of site type. The processes of site formation are numerous and varied, influenced by both cultural and natural agents. It is important, for example, to distinguish between single episode events, such as knapping clusters that result in high numbers of artifacts, and cyclical events such as repeatedly utilized fire hearths, which may have longer use lives without producing substantial increases in artifacts (Binford 1982, 1992). These distinctions are critical as they imply notions of intensive versus extensive use of a site. Adding to the complexity, natural processes including sedimentation rates and post-depositional forces are important in the formation of an archaeological site, as they may influence the location, density, and condition of artifact deposits (Butzer 1982; Waters 1992).

Hickory Bluff is an example of a complex site with artifact assemblages that are extensive, both in quantity and in their spatial distributions. This complete data set may be useful in reevaluating traditional notions of site typology. Chronological information gathered from radiocarbon dates, ceramic typology, and diagnostic projectile points illustrate that the site was repeatedly occupied throughout a substantial segment of prehistory. Yet there was little clear evidence of vertical stratification within the site with which to easily isolate specific occupations. Cultural debris spanning as much as 4,000 years was contained within a sediment package that averaged only 30 cm thick. However, the open area excavations allowed for large sections of the site to be examined for evidence of horizontal separation of its components. Comparative distributions of features, diagnostic artifacts, and non-diagnostic artifacts were employed to interpret site structure. These spatial analyses will help in determining patterns and differences in site use through time.

SETTING

To provide a perspective on the horizontal extent of the site, we have constructed a three-dimensional image of the project area using topographic data, and overlaid the distribution of the archaeological excavations (Figure 1). The region shown here measured about 200 by 200 meters. The excavation units were 1 meter squares, and are shown in red. The gray line in the upper right is an area where the plow zone was mechanically stripped off to sample feature distribution away from the core of the site.

Artifact distribution across the site area varied greatly in intensity and in terms of component assemblages. A map of the distribution of chronologically diagnostic projectile points demonstrates the wide range of time periods represented at the site (Figure 2). It suggests the apparent complexity of occupation, as a mixture of chronological periods is represented in most areas. However, within the complexity of this and other data sets from the site, there is patterning that provides information about site structure and occupation, sequences that can help us reconstruct prehistoric activity in this locale.

Our discussion will focus on the central part of the site, as outlined on the map. This area comprised the largest open area excavation at the site, consisting of 308 contiguous 1 meter squares, and therefore provides the most complete and uninterrupted spatial data.

FEATURE DISTRIBUTION

Within this area, 48 individual and discrete features were encountered. For the purposes of this presentation, they have been divided into 3 broad groups: small basin features, large basin features (including both shallow and deep varieties), and fire-cracked rock clusters of varying size. As this map indicates, there was extensive overlap among the features of all types, suggesting repeated use of the area (Figure 3). This overlap made determining associations between the features, which would be indicative of site structure, extremely difficult (Binford 1982). This problem was compounded by the fact that while many features did not contain chronologically diagnostic artifacts, those that did, often contained material that was mixed in age.

CERAMIC DISTRIBUTION

One particularly abundant form of chronological information at the site consisted of ceramic sherds. Of over 8,000 sherds recovered during the excavations, approximately 2,000 could be assigned to one of eleven major wares known to the region. Spatial analyses of the distributions of each ware were conducted and a series of maps was drawn to illustrate the results of the cluster analyses – the maps show artifact density as contour lines. This map illustrates the distribution of all Clay-tempered wares (Figure 4). Nine distinct clusters are observed stretching from the south to the north of the excavation. Drawing ellipses around the most prominent clusters provides a summary indication of where activity occurred that was associated with these wares (Figures 5).

Similar analyses were carried out for each of the major ceramic wares at the site, and a composite map was constructed for the main sub-periods of occupation (Figures 6 & 7). As is evident in this map, there were both isolated and overlapping clusters of Early Woodland ceramics. Clay-tempered wares dominated the Middle Woodland ceramic assemblage and although they showed clusters, some blending and overlap occurred along the edges and between the main clusters. Late Woodland ceramics were much less frequent across the entire site, and tended to be found within the organic A-horizon, or disturbed contexts. As a result, they did not provide enough data for similar cluster analysis and are not displayed here.

From these maps of the ceramic assemblages, some temporally and horizontally discrete activity areas are evident. At the same time, adjacent areas appear heavily reused, with temporally diverse ceramic wares being found in close spatial association (Figure 8). However, the ceramic assemblages represent only one of the chronologically significant data sets available at the site.

RADIOMETRIC DATA

Radiometric data, which was generally obtained from feature proveniences, provided dates ranging from the 19th century AD to 4200 BP. In this portion of the site, though, none of the dates were within, or close to the accepted ranges of the ceramic clusters with which they were spatially associated. As a result, the radiometric dates comprised an incongruous data set. The disparity between the ceramics and radiocarbon dates is likely an indication of repeated site use, as well as of the natural movement of carbonized material within the shallowly buried cultural deposits.

PROJECTILE POINT DISTRIBUTION

Another level of complexity in the data is evident when projectile point distributions are overlaid on the ceramic clusters already identified. From this map, it can be observed that point types associated with different time periods are found in close horizontal proximity, even occurring within the same 1 meter square (Figure 9). Moreover, many point types are found within clusters of diagnostic ceramics with which they do not match chronologically.

DISCUSSION

The complexity presented by the spatial data at Hickory Bluff does not provide simple answers to the question of site structure. In situations such as these, words like palimpsest and overprinted are often used to describe depositional contexts. Clear associations of activity areas, feature types, and diagnostic artifacts that would suggest a large-scale structured site, were not found consistently at Hickory Bluff. However, some evidence of site structure is contained within the identified ceramic clusters. The overlap seen in Early Woodland ceramic wares, for example, as well as the abundance of commingled Middle Woodland wares, offers a pattern that is likely the result of intensive, cyclical re-use of the landscape, rather than large-scale occupations of relatively short duration. The intersecting feature types, as well as overlapping chronological data, are all suggestive of smaller repeated occupations. Evidence from the site suggests that the landscape was intensively utilized, and this has resulted in an often confusing and contradictory array of data. Many sites along the St. Jones and other Coastal Plain drainages, with a similar presence of dense artifact assemblages from multiple time periods, and high frequencies of diverse features, have been interpreted as macro-band settlements (Custer 1989, 1986). Careful mapping of the available data from Hickory Bluff has allowed for a more focused view of the complexity of this particular site. The spatial distribution analyses, which indicated the horizontal mixing of temporally diagnostic artifacts, as well as the overlap of features, is

more likely the result of the cyclical re-use of the landform by relatively small groups. The context of the Hickory Bluff site is similar to that of other large sites along the St. Jones drainage in terms of size and layout, in addition to artifact and feature diversity and distribution (Custer 1989). Thus, it may be that a re-evaluation of site structure interpretations in similar settings, utilizing new analytic tools available, will be useful in providing a fuller understanding of regional settlement patterns.

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**THE HICKORY BLUFF CERAMIC ASSEMBLAGES:
MANUFACTURE, CHRONOLOGY AND
SOCIAL BOUNDARIES**

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INTRODUCTION

(slide - title) Excavations at the Hickory Bluff Site resulted in the recovery of over 8,000 ceramic vessel sherds, approximately 2,000 of which measured greater than 2 cm in diameter. In this paper we will describe our methods of analysis, outline the ceramic wares found, report the results of several new AMS dates obtained from ceramic residues, and discuss what we hope to learn from additional special analyses to be performed.

(slide-ceramic totals) This site presented an opportunity to study the formative period of ceramic manufacture in this region. The collection included Marcey Creek, several sherds of Dames Quarter, and the later Early Woodland Wolfe Neck and clay-tempered wares. The clay-tempered ceramics from the Hickory Bluff site appear to have been used well into the Middle Woodland period, as indicated by radiocarbon dates we will present. A scattering of other Middle Woodland wares -- Popes Creek, Mockley and Hell Island -- also were represented, and a small sample of Late Woodland wares -- Townsend and Minguannan-- attested to the continued use of this location through the Late Woodland period. Because of the low frequencies of these later wares, they will not be discussed at this time.

(slide-sorting) The laboratory analysis of this ceramic collection was designed to answer questions of vessel distribution, vessel manufacture including sourcing of temper and inclusions, vessel use, and chronology. Initially, each individual sherd was recorded for attributes including temper, interior and exterior surface treatment, decoration, weight, and thickness. Sorting and crossmending of the collection was undertaken for sherds greater than 2 cm in diameter in order to reunite sherds from single vessels. The collection was then divided into "vessel lots" which were based on similarities of paste, temper and inclusions, surface treatment, and vessel form. Each lot represents, at a minimum, one vessel and may represent more where the pastes are indistinguishable to the naked eye. It was considered that the use of the vessel lots, versus individual sherds, would provide a more even and consistent description of ceramic frequencies.

(slide-site overview) The excavations at Hickory Bluff were in large blocks of 1 x 1m units extending up to 30 meters on a side, and provided a rare opportunity to examine ceramic sherd and lot distributions. A primary goal in the analysis was to use the crossmends and vessel lots to recognize patterns in the discard and/or post-depositional distribution over the site. The sorting and crossmending also helped demonstrate variability found within single vessels and between vessels, and provided additional information on vessel manufacture and form. The lots were compared to the established wares of the Delmarva and Middle Atlantic and classified, to the extent possible, into known wares. The examination of the collection in the framework of established ware typologies was done to facilitate the discussion of chronology and help highlight similarities and differences of the Hickory Bluff assemblage to others in the region, while the individual lot descriptions account for the variability seen within each ware.

MARCEY CREEK WARE

(**slide-Marcey**) Over 1,000 sherds of Marcey Creek were recovered representing eleven vessel lots. In the Middle Atlantic region Marcey Creek ceramics have been dated to the period between 1200 and 800 BC (Egloff and Potter 1982). The exterior and interior surfaces of the vessel walls were plain, and the exterior of the flat bases showed impressions of the mats on which they had been formed. Interior surfaces were often darkened while exterior surfaces were reddened. Several vessel rims were notched. (slide-paste close-up) The sherds were tempered with steatite or a steatite-like schist. In addition, inclusions of fine pieces of clay, possible shell, and hematite were present in some lots. While the form and qualities of temper and inclusions varied in the Hickory Bluff vessels, our examination of Marcey Creek sherds from the Marcey Creek and Selden Island sites in Virginia found that those sherds had a very similar range of variation in form, temper and inclusions. Custer and Silber (1995) also reported combinations of temper in flat bottomed wares at the Snapp Site in southern New Castle County, Delaware that included steatite and clay, and Stewart (1998) reported steatite and crushed quartz occurring in combination at Abbott Farm, New Jersey.

(**slide - lot M1**) Vessel Lot M1 was the most complete reconstruction in the Hickory Bluff site collection and is representative of the majority of the Marcey Creek sherds. The base was formed from joined strips of clay and the wall from wide, flattened coils. Marcey Creek ceramics are commonly regarded to be constructed of modeled clay based on the early descriptions by Manson (1948) and Evans (1955). However, Egloff and Potter (1982) and others have since recognized that the coiled form of Marcey Creek actually is more common. (**slide-M1 distribution**) The sherds for this vessel were recovered from seven 1x1m units. (**slide- crossmends**) Sherds separated by over 3 meters were found to crossmend.

Selden Island ware has been reported from Delaware sites, but no cord-marked, steatite-tempered sherds were found at Hickory Bluff. (**slide - lot M2**) However, several Marcey Creek vessels contained a much lower percentage of steatite temper and narrower coils. These may represent the evolution of flat-bottomed vessels toward the narrow coiled form seen on later conoidal wares.

Thin-section analysis, which is currently in progress, may shed light on whether the Marcey Creek sherds at the site were made locally using imported steatite temper, or whether the pots themselves originated in the Piedmont. (**slide-steatite**) One slab of steatite was found, but it is not clear whether this was a bowl fragment or whether it was material for use as temper or something else. Michael Klein (1997) recently has discussed the production, function, exchange, and social importance of Marcey Creek ceramics. Critical to an understanding of the ware distribution will be a determination of whether the vessels are of local or non-local clay.

WOLFE NECK WARE

(**slide - Wolfe**) Wolfe Neck, a quartz-tempered, cord-marked or net-impressed ware was represented at Hickory Bluff by approximately 200 sherds that we grouped into 4 lots. The Hickory Bluff Wolfe Neck vessels were cord-marked; net-impressed examples were not present. (**slide-interior**) Some were cord-marked on the interior, similar to Vinette I ware. Other comparable Early Woodland wares in the Middle Atlantic include Accokeek and Elk Island. Wolfe Neck ware is estimated to date from ca. 700 BC to 400 BC (Artusy 1976). (**slide-dated sherd**) An AMS radiocarbon date for residue scraped from a Wolfe Neck sherd from Hickory Bluff yielded the date of 2160 +/- 50 BP (2 Sigma calibrated result of BC 375 - 55). (**slide - dates**) This date overlaps the radiocarbon date for charcoal associated with Wolfe Neck from the Wilgus site, and is later than other Wolfe Neck dates. [Slide indicates following dates: 2455+/-60 BP Wolfe Neck, DE; 2450+/-85 BP Dill Farm, DE; 2330+/-85 BP Dill Farm, DE; 2240+/-60 BP Wilgus, DE; 2160+/-50 BP (2 sigma calibrated BC 375-55) Hickory Bluff, DE]

POPES CREEK WARE

(**Slide- Popes**) Also present at Hickory Bluff was a small collection of Popes Creek, a ware that has been dated to ca. 500 B.C. to A.D. 200 in Virginia and Maryland (Egloff and Potter 1982). The net-impressed sherds represent a single vessel lot and are remarkably similar to the classic Popes Creek sherds found west of the Chesapeake Bay. They had a highly ferruginous paste that contained crushed quartz and large quantities of sand and small pebbles.

CLAY-TEMPERED WARES

(**slide - clay-tempered**) The largest group of ceramics from Hickory Bluff was the more than 2,500 clay-tempered sherds, separated into 13 cord-marked and 18 net-impressed lots. The clay inclusions ranged from large, distinctive pellets of clay to small clay inclusions. Some were rounded, others more angular. Some sherds appeared lacking in temper but had a lumpy or less processed paste. (**slide-herd temper**) Crushed sherds may also be present as temper, although in the entire assemblage only one clear example was recognized. The amount of sand in the clay-tempered vessels also varied considerably. The majority of the lots would fall under the Coulbourn ware description, however several did contain small amounts of crushed quartz or shell in addition to the clay, as described for Nassawango and Wilgus wares. (**slide-surface treatment**) Net impressing predominated as exterior surface treatment and also frequently was found on the interior near the rim. Distinctive scraping of the interior also was common, and occasionally also was seen on the exterior.

In regard to the clay temper in the ceramics, several factors might be at work. Keith Egloff's research on Early Woodland, clay-tempered sherds from the Croaker Landing Site, in southeast Virginia, for example, led him to suggest that the clay inclusions were the result of a failure to grind and mix the clay thoroughly in preparation for use. This implies that there was no intentionally introduced temper. Moreover, a chemist at the

Williamsburg Pottery agreed by stating that clays from the area, if not thoroughly ground and mixed, will yield color and textural variations similar to those found in the sherds from Croaker Landing (Egloff et al. 1988). However, other Croaker Landing sherds excavated by the William and Mary Center for Archaeological Research from Site 44KW81 were thin-sectioned by James Stoltman, who found 26 of 29 tested vessels to have been tempered with crushed sherds, or grog. He recognized temper in some of the grog itself, as well (Pullins et al. 1996). So purposeful additions might be indicated by the inclusion of crushed sherds or fired clay nodules, while some of the clay fragments may be due to incomplete mixing. This issue is one that is being addressed by thin-section analysis of the Hickory Bluff clay-tempered sherds.

New AMS radiocarbon dates were obtained for clay-tempered ceramics from the residue of three sherds from the Hickory Bluff site. (**slide-1st dated sherd**) The earliest date was for residue from an S-twist, cord-marked sherd that yielded a date of 1980 \pm 40 BP, or the 2 sigma calibrated result of BC 55 to AD 95. (**slide-2 sherds**) This sherd was found in a context together with net-impressed clay-tempered sherds. (**slide-2nd sherd**) The second date was for the residue from a similar S-twist, cord-marked sherd from another area of the site. It dated to 1930 \pm 40 BP, or BC 5 to AD 140. (**slide-3rd sherd**) The third date was for the residue of a net-impressed, clay and shell-tempered sherd (Wilgus) that was 1850 \pm 60 BP, or AD 45 to 330.

(**slide - dates**)[Slide indicates: 2325 \pm 60 BP Wolfe Neck, DE.; 2240 \pm 60 BP Wilgus, DE.; 1980 \pm 40 BP (2 sigma calibrated BC 55 to AD 95) Hickory Bluff, DE; 1930 \pm 40 BP (BC 5 to AD 140) Hickory Bluff, DE; 1850 \pm 60 BP (AD 45-330) Hickory Bluff, DE] Based on the radiocarbon date of 375 BC from the Wolfe Neck Site, Artusy (1976) estimated that clay-tempered ceramics dated to the period ca. 400 BC to 100 BC. The recognition of Nassawango and Wilgus wares has broadened the time range. In addition, Custer (1995) reported overlap between the use of clay-tempered wares and Middle Woodland, shell-tempered Mockley ware at the Carey Farm Site. The residue dates for the Hickory Bluff clay-tempered sherds add evidence that clay-tempered wares continued to be used into at least the early Middle Woodland period.

The date range of clay-tempered wares closely overlaps the traditional dates for Popes Creek ceramics to the west, and shared attributes between the two wares have been noted by researchers such as Wise (1975) and Hughes (1991). These include occasional pebble inclusions, net roughening and impressing, interior scraping or scoring, and some finger swiping. {**slide - Lot CN7**, for example, is a clay-tempered vessel with pebble inclusions showing a blend of the characteristics of these two wares}

MOCKLEY WARE

(**slide - Mockley**) Some of these attributes persisted into the Mockley ceramics from Hickory Bluff. This shell-tempered ware was composed of pastes that ranged from smooth to sandy. Both cord-marked and net-roughened exterior surface treatments were represented. Interiors were sometimes marked with a similar distinctive scraping

reminiscent of the Wolfe Neck and clay-tempered ware. Decoration included one lot with impressed parallel single cords at an angle to the rim.

HELL ISLAND WARE

(slide - Hell Is.) The final Middle Woodland ware recovered was Hell Island ware. These vessels were tempered with finely crushed quartz, and two contained mica inclusions as well. Two were of a sandy paste with a cord marked exterior and plain interior, and a third vessel was of a less sandy paste and was fabric-impressed on the exterior.

CORDAGE TWIST

(slide of cordage) In our sampling of cordage twist treatment, the earlier wares at Hickory Bluff, including Wolfe Neck, Popes Creek, clay-tempered wares, and Mockley were impressed with S-twist cordage with very few exceptions. Our testing of samples from other dated contexts in Delaware produced the same results for those wares. These findings are consistent with the analysis of wares from the same time period in the Potomac River drainage and the James River estuary (Petersen 1999; Johnson & Speedy 1990).

CONCLUSION

(slide-lots) The study of the Hickory Bluff ceramics is still in progress. Plots showing the distribution of each of the ceramic lots are being completed and analyzed. Analysis of the ceramic thin-sections is being undertaken to determine information such as whether the clay inclusions are from the same body of clay as the paste matrix, and to derive information about sources of materials. **(slide of tiles)** Clay from the vicinity of the site has been fired and thin-sectioned to be examined along with sample sherds from each of the major lots. **(slide-residue)** Chemical and microscopic examination of potential food residues also is being undertaken. We have presented a brief overview of our findings, however, much of the analysis lies ahead.

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HICKORY BLUFF AND THE ST. JONES RIVER LANDSCAPE

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INTRODUCTION

The St. Jones River drainage can be characterized as a combination of natural and cultural landscapes within which the occupants of the Hickory Bluff Site lived. The natural landscape, as traditionally viewed in archaeology (Knapp and Ashmore 1999), provided environmental parameters within which settlement was constant. The cultural landscape defined both social and spiritual parameters for occupation along the St. Jones and interaction with the supernatural. Perhaps the most obvious indicator of ritual activity is the presence of the Delmarva Adena manifestation at the St. Jones Adena Site south of Hickory Bluff.

THE NATURAL LANDSCAPE

The St. Jones River is a tidal tributary and flows in a generally southeasterly direction into the Delaware Bay. The St. Jones is approximately 16 miles long and the watershed drains 55,000 acres (DNREC 1997). Major arteries are northeasterly or east flowing streams. The physiographic character of the St. Jones margins contrasts rather sharply between the river's upper and lower reaches. In the vicinity of Dover, the St. Jones meanders within a well-defined valley. Bluff slopes are present where the channel has transgressed adjacent uplands. Freshwater wetlands occur on the inside of the numerous meander loops. The mouths of several tributaries (Puncheon Run and Isaac Branch) are embayed, forming wide coves that extend inland from the main channel. Further downstream, the main channel is bordered by expansive brackish tidal wetlands. Wetland areas also exist along minor tributary streams that shallowly dissect the flanking uplands. In contrast to the Chesapeake Bay shore, where the mouths of even very minor drainages are broadly embayed, the St. Jones, the Murderkill, as well as other rivers in the area enter the Delaware Bay through a narrow channel. This configuration provides for a fairly dramatic tidal current along much of the lower reaches of these rivers.

Paleoenvironmental conditions along the St. Jones River were affected by the rise in sea level associated with the melting of the Pleistocene continental ice sheets (Custer 1989). From the late Pleistocene until about 3000 B.C., the rise in sea level was rapid, inundating the lower Delaware River floodplain. After 3000 B.C., the rise was less pronounced, and riverine and estuarine environments were established and stabilized, creating a predictable and abundant resource base.

The freshwater-brackish water transition zone of Middle Atlantic Coastal Plain rivers is widely recognized to have been a highly productive environment for aboriginal hunting and gathering peoples. In this zone, a wide range of resources co-occur, or can be found in close proximity. While the fresh-brackish transition of the St. Jones estuary comprises a rich and productive environment, the nearby upper and lower reaches of the river have a completely different physiographic character and ecological make up. Areas along the mouth of the St. Jones and the Delaware Bay shoreline, situated just a few miles downstream, are characterized by expansive salt marshes. By contrast, prior to historic land clearing, areas west of present day Dover would have been covered in mixed

deciduous forests drained by spring-fed low order streams. These divergent settings would have hosted distinctly different plant communities and game species populations. The proximity of three very different and productive environmental zones: 1) salt marsh/ bay shore, 2) freshwater-brackish tidal estuary and 3) interior forests/fresh water streams, would have provided seasonal diversity and subsistence stability for Native American groups in the area.

THE ST. JONES RIVER OCCUPATIONS

Over 210 prehistoric sites have been recorded in the St. Jones watershed (Delaware SHPO files). Observable site patterning is the result of a combination of variables including post-depositional processes, archaeological bias, and cultural selection. Forty sites in the St. Jones watershed were identified with temporally diagnostic artifacts (i.e., projectile points and ceramics) and/or radiocarbon dating. Very few Paleoindian (n=3) or Early Archaic (n=4) occupations have been recorded on the St. Jones. The three sites with possible Paleoindian artifacts (i.e., finely-flaked large projectile point fragments) occur on the upper reaches of the St. Jones drainage along Fork Branch and Isaac Branch. The four Early Archaic occupations are also situated on Fork Branch in the northern portion of the St. Jones drainage. Post-depositional processes and differential preservation are both contributors to the scarcity of these early period sites in this watershed. Paleoindian and Archaic floodplain sites on the lower Delaware River and major tributaries have, of course, been lost to rising sea levels.

Middle and Late Archaic occupations increase in number and cover a broader area of the St. Jones drainage. The Middle Archaic occupations occur on Fork Branch, the middle and lower reaches of the St. Jones, and above Tidbury Creek. The Late Archaic occupations also occur along the St. Jones, Fork Branch and on the coast; three sites are associated with smaller tributaries of Isaac Branch, Cahoon Branch, and Puncheon Run. Multi-component locations are few and include Blueberry Hill at the confluence of the St. Jones with the Maidstone (Heite and Blume 1995).

Early, Middle, and Late Woodland occupations illustrate the same broad patterns of site location as suggested in the Middle and Late Archaic; however, these occupations concentrate along the middle reaches of the St. Jones with only a few clusters on the confluence with Maidstone Branch and Fork Branch in the northern portion of the watershed. Repeated use of site locations throughout the Woodland Period increases, particularly along a 4-mile stretch on the central portion of the St. Jones.

Ten sites are located within 4 miles of each other and include Hickory Bluff, Puncheon Run, Island Farm, Carey Farm, the Air Base School Site, and the St. Jones Adena site. These sites are located on the bluffs above the St. Jones and the general area encompasses the confluence of the St. Jones with three tributaries: Puncheon Run, Isaac Branch, and Tidbury Creek. In the prehistoric period, this area represented an ecotone between two major resource zones: the estuary environment associated with the embayed confluences, and freshwater/ riparian /upland forest zones along the St. Jones and its tributaries. The

accessibility of different resources areas (i.e., tidal estuary and upland forests) and the density of resources in the estuarine environment created a magnet for prehistoric populations (Binford 1980).

THE CULTURAL LANDSCAPE - SECULAR

To the Native Americans, the cultural landscape in the vicinity of the Hickory Bluff Site most likely included both secular and spiritual aspects. The secular or social nature of the cultural landscape may have consisted of other sites/occupational areas which may or may not have been contemporaneous, and cultural boundaries determined by topographic features. Social parameters for site selection on the east side of the St. Jones may have included maximizing viewshed of the river and the adjacent tributaries (i.e., Puncheon Run, Isaac Branch and Tidbury Branch) for defensive purposes.

These sites represent continuity of occupation from the Early through the Late Woodland. Early Woodland ceramics (i.e., Marcey Creek, Seldon Island, Dames Quarter, Wolfe Neck, and Accokeek) occur in various combinations at nine of the ten sites (the exception being the St. Jones Adena site). Seldon Island ceramics were identified only at Island Farm and Accokeek ceramics occurred only at Carey Farm (Custer et al. 1995). Clay-tempered ceramics such as Coulbourn, Nassawango and Wilgus, were identified at Puncheon Run on the west side of the St. Jones (Liebknecht et al. 1997) and at the five sites on the east side of the river (Hickory Bluff, Island Farm, Carey Farm, 7K-D-26, and Air Base School). With the exception of site 7K-D-28, which contained only Hell Island sherds, the remaining eight sites were characterized by both Mockley and Hell Island ceramics, demonstrating continuity in Middle Woodland occupation. Late Woodland occupations, exemplified by the presence of Townsend, Killens, and Minguannan sherds, suggested a slightly different pattern with the majority of the sites containing Townsend ceramics. Minguannan sherds occurred on only four sites (Hickory Bluff, Island Farm, Carey Farm, and 7K-D-26) (Catts et al. 1995; Custer et al. 1995; Parsons ES 1999).

The occupations defined by the presence of Minguannan ceramics are clearly associated with the east side of the St. Jones. Only one other site in the St. Jones drainage (site 7K-C-312) contains Minguannan ceramics and it is also located on the east side of the St. Jones at Fork Branch. The number of sites in the St. Jones drainage with Minguannan occupations is extremely small (n=5) suggesting very limited and geographically restricted occupations in this portion of Delmarva. It is possible that the St. Jones River represented a territorial boundary between two populations, one that the Minguannan ceramic makers did not cross. Incidentally, the presence of Minguannan occupations along the eastern bluffs of the St. Jones may also have been based on the need of a wide viewshed, possibly associated with a defensive posture.

THE CULTURAL LANDSCAPE - SPIRITUAL

The cultural landscape in the central portion of the St. Jones River most likely contained spiritual aspects of site location and ritual activity. Use of symbols in cosmology such as

cardinal directions among other things, may have influenced cultural patterning. The most distinct manifestation of the spiritual landscape presently recognized in this area is the Delmarva Adena Complex.

The Delmarva Adena Complex is defined by the presence of elaborate and exotic grave goods associated with multiple burials from the Early Woodland Period. The mortuary sites in the Delmarva consist of the Killens Pond Site (7K-E-3), the Frederica Site (7K-F-2), the Sandy Hill Adena Site (18DO30), the Nassawango Adena Site (18WO23), and the St. Jones Site (7K-D-1) (Ford 1976; Custer 1989; Dent 1995). Non-mortuary habitation sites are identified by the presence of Adena notched points, usually made from high-quality chert from the Ohio River Valley, isolated exotic artifacts identical to those associated with mortuary locations, and clay-tempered ceramics, such as Coulbourn, Nassawango, and Wilgus (Custer 1989).

The St. Jones Adena site (7K-D-1) is located on the east side of the St. Jones River, north of the confluence with Cypress Branch. This site consisted of the remains of at least 50 individuals (both adults and sub-adults) in eight discrete locations, and represented dry bone cremations and secondary burials indicated by unburned disarticulated bone (Thomas 1976; Custer 1989). Associated grave goods included bifacial blades and stemmed points of local and non-local lithic materials, tubular pipes, copper and shell beads, stone and copper gorgets, drilled animal teeth, stone paint cups, faceted hematite, and mica (Thomas 1976; Custer 1989). Social status was inferred by the presence of substantially more artifacts associated with secondary burials whereas fewer artifacts were found with cremations. Age or gender did not necessarily define social status because both females and sub-adults were interred in secondary burials with numerous artifacts (Custer 1989).

Radiocarbon dating and artifact assemblages from the prehistoric sites north of the St. Jones Adena site suggest specific occupations during the Adena time frame. Radiocarbon dates from Hickory Bluff, Carey Farm, Island Farm, and the St. Jones Adena site bracket a series of probable Adena occupations. The residue from three clay tempered ceramic sherds at Hickory Bluff have yielded radiocarbon dates of 1850 \pm 60 years before present (BP), 1930 \pm 40 years BP, and 1980 \pm 40 years BP; all three dates occur within the later stages of the Adena time frame. Two of the three radiocarbon dates from Carey Farm were associated with features containing both Coulbourn and Mockley ceramics. The quantities of Coulbourn and Mockley sherds from the two features was sufficient to identify individual vessels and indicated simultaneous use of two ceramic types (Custer et al. 1995: 129).

All of sites identified as possible camp locations on the east side of the St. Jones River exhibited clay-tempered ceramics. Coulbourn ceramics were present at all five sites (Hickory Bluff, Island Farm, Carey Farm, 7K-D-26, and Air Base School). Nassawango ceramics were identified at both Island Farm and Carey Farm (Custer et al. 1995). Preliminary analysis of the Puncheon Run artifact assemblage indicates the presence of Wilgus ceramics. Flint Ridge Chalcedony artifacts were recovered from several of these sites, including debitage at the Air Base School Site (Thomas and Payne 1996) and at

Hickory Bluff (Liebknecht et al. 1997), and a Snyder's corner-notched point from the South Central Area at Carey Farm (Custer et al. 1995). Adena-like contracting stemmed points from Hickory Bluff may be associated with this Adena occupation of the St. Jones River. The presence of the two broken incised slate gorgets at Hickory Bluff may also be suggestive of the Adena manifestation although direct association with dated features has not yet been established.

Cultural landscapes associated with the use of mortuary sites in the lower Illinois River valley have been suggested (Buikstra and Charles 1999) and may represent both spiritual and social realms. Locations of mortuary sites on bluff crests in the lower Illinois River valley are viewed as a spiritual landscape where the dead are placed at the intersection between earth (natural universe) and sky (spiritual universe), providing a vertical dimension metaphorically connecting the two worlds. These highly visible bluff top sites also may have served as markers of territorial ownership (Buikstra and Charles 1999:208).

Similar characteristics are associated with the St. Jones Adena Site, located on a terrace/bluff at the neck of a St. Jones oxbow bend. Unobstructed view (i.e., viewshed) from the site is approximately 205°, ranging from southeast to west to northwest. Some Woodland mortuary sites in Maryland (including the Adena site, Sandy Hill) are situated in similar settings as the St. Jones Adena Site. These elements include location on the middle ranges of major drainages, use of prominent high spots, and excellent visibility facing open water, particularly viewed to the west (Curry 1999).

Other types of cultural landscapes may be based on horizontal symbolism, in a manner similar the directional shrines and levels of sacredness identified in the Southwest (Snead and Preucel 1999). Although site patterning currently recognized on the St. Jones may be biased by restricted coverage of archaeological investigations, the existing site locations indicate five distinct occupation areas along the east side of the river, north of the St. Jones Adena Site. General belief of Mid-Atlantic groups was that departed spirits traveled south or west (Goddard 1978; Rountree 1989; Weslager 1996). Locating occupations north or east of burial locations may imply creating unobstructed paths for departing spirits. And in the case of this portion of the St. Jones, the north/south river course may reinforce that symbolism.

CONCLUSION

The Hickory Bluff Site represents a continuity of prehistoric occupation along the St. Jones River and will contribute to an understanding of both natural and cultural landscapes through time. This site indicates economic considerations characterized by the procurement and use of adjacent floral and faunal resources along the river. The secular aspect is suggested by the presence and density of other sites along the bluffs and hints of possible territoriality and defensive strategies. The spiritual realm at Hickory Bluff may be reflected in the directional orientation of camp locations in relation to a mortuary center associated with the Delmarva Adena. The Hickory Bluff site contains a wealth of

archaeological knowledge, that with continuing analyses, may provide a more comprehensive understanding of economic, social, and spiritual realms of prehistoric populations along the St. Jones.

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THE HICKORY BLUFF SITE
HALLMARKS AND CHANGING PERCEPTIONS OF DELMARVA ARCHAEOLOGY
COMMENTS ON THE PRESENTED PAPERS

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INTRODUCTION

Having spent a large chunk of my career doing research in the realm of cultural resource management, I long for the days of budgets that could accommodate a variety of specialists, numerous technological and material science analyses, archaeological deposits worthy of this attention, and agreeable clients. The Hickory Bluff project reminds me that, warts and all, CRM archaeology has been responsible for transforming our understanding of the past in ways that museum-based, or university-based archaeology never could. Likewise, the Hickory Bluff project demonstrates that such transformations can't be realized by the lone, aggressive, and highly caffeinated CRM-based scholar working in isolation. Success is very much a community effort, and the community extends well beyond the corporate walls.

THE CONTRIBUTION OF THE PAPERS/NOTABLE THEMES

As a group, the papers do a good job of covering the basics that are expected from any well planned project- a review and reconstruction of environmental settings and ecological relationships, geomorphology and site formation processes, descriptive reviews of artifacts, features, site structure, and a range of tentative interpretations. These make the best of a deposit that is not much more than 30 centimeters thick and spans 4000+ years of occupation, something that tends to get overlooked in the excitement over Hickory Bluff.

It's great to see so many C14 dates being run. We can never have enough. Do more! Rutherford and Knepper are in a touchy situation dealing with biface typology and using it to define cycles of occupation and units for other types of analysis. I'm a bit surprised that stratigraphy and context don't figure more prominently in the discussion of typology and chronology. It would have been nice to see the range of typological variability seen in individual features, or other contexts that the authors deemed to be reliable. The amount of biface variability that has been encountered in believable contexts after 3000 BC and before 800 AD is daunting. But it's what we should expect given the social and economic trends of the times - territoriality, scheduled settlement movements, regionalization of artifacts styles, expressions of "us" versus "them", and consistent involvement in trade or exchange.

The use of cobble deposits and their effects on the attributes of bifaces noted by Egghart and Shields is a message well taken, and one that has been offered by others, most recently by Darrin Lowery in his analysis of Clovis Paleo-Indian technology on the Delmarva Peninsula. In fact, the Delmarva contains a variety of cobble deposits, some with quite large-sized clasts of useful material. I've even seen stream-transported, boulder sized masses of argillite. There's quite a massive cobble deposit in the vicinity of the Island Field Site at Bowers Beach, within 12 miles of Hickory Bluff.

If there are other cobble deposits with attributes different from those of the gravels at Hickory Bluff (and there are), shouldn't this be reflected in the biface assemblages to some degree? After all, no one is arguing that Hickory Bluff represents a sedentary community. How might this contribute to our understanding of the tremendous amount of biface variability that we believe we are seeing in tight, well defined contexts? While biface attributes and variability may encode social information, we need to control for functional aspects of assemblages in order to build arguments linking tools with specific groups of people.

The linking of the availability of the local gravels to changing landscapes through time and cycles of occupation by Hayes and Monaghan is also interesting in this regard. But as other presenters have pointed out, there are many reasons why the Hickory Bluff landscape might have been chosen for occupation. Searching for other cobble sources in order to reconstruct the lithic landscape and better understand chipped stone technology, settlement movements, and potential trade relations will have to deal with the reality of sea level rise and its effects on stream dynamics and landscape evolution.

Being an old pothead I get all gushy anytime anyone starts describing ceramics. There are lots of individual vessels in the early ceramic assemblage characterized by Robertson, Shields and Stevens. This is a pattern that is not typical across the Middle Atlantic Region at this time. As I have argued elsewhere, variability in the degree to which early ceramics are used is an indirect reflection of the social relations of technology prior to and during the acceptance of ceramics by regional folk. In other words, how does the cultural context of container production, distribution, and use link people in relationships that the use of pottery might enhance or destroy? And please explain to me (functionally or otherwise), the shift to grog/clay/sherd tempered pottery and its unique linkage with what are presumed to be Delmarva Adena habitation sites.

The authors note a troubling disconnect between the C14 dates and existing date ranges assigned to ceramic types. Are the contexts good, and we need to revise our chronological typologies accordingly? Or are the C14 dates telling us that the reuse of the site and site formation processes are more complicated than imagined?

The small quantity of botanical remains described by McNight have potentially huge implications. Forest canopy species, especially hickory - an important resource, are represented, but understory species are not. Might this be an archaeological signature of forest management on the part of the Indians? The ethnographic record of other regions contains examples of hunter gatherers pruning trees, coppicing, and clearing understory to promote the growth of favored species.

The geomorphic study by Hayes and Monaghan adds to the big environmental picture of the Delmarva that has been growing for quite some time. Most importantly, I think, it points out how understanding variability on a smaller geographic scale is just as important, if not more so, than the big picture in terms of understanding settlement choices and economic behavior.

Spatial analysis: I thought that Fitzell and Knepper's clever way of gauging the times during which the site was most frequently reused was great. Through their analysis of clustering, in conjunction with numerous C14 dates, a complicated pattern of site use emerges, but one that seems to conform to trends seen elsewhere, i.e., occupations are most frequent during the time from roughly 1200 BC until 200 AD). There are economic reasons why this should be so, but also social reasons - the St Jones drainage stands out as a hotbed of Delmarva Adena activity. To what degree are cycles of site reuse, site densities, and site distributions a reflection of periodic participation of communities in activities at ritual or mortuary sites, and not strictly economic activity? I'd also like to hear more about what comparable site structure over time implies.

I was struck by some of the site clustering described by Bupp in her consideration of regional context. Ten sites with the same general periods of occupation, including Hickory Bluff, are located within 4 miles of one another. The hypothetical catchment areas or foraging radii associated with these sites would therefore overlap. It thus becomes important to determine which, if any of these localities are actually contemporaneous. There would be a variety of implications for the social and economic relationships that might have existed between these communities that could frame future, site-specific research. For example, is there economic inter-dependence between communities, especially those with Delmarva Adena components?

The presentations of Petraglia, Clark, and Busby remind us to move beyond technological and economic explanations of archaeological evidence, even when they seem satisfying. This is a call echoed in many of the other presentations. Technological and economically grounded approaches have tended to be the norm in archaeology given the nature of the evidence that we typically deal with, and the relative ease with which such interpretations and related hypotheses can be tested. But we never should stop there, although we often do. Remember your schooling as young anthropologists. There is value in both emic and etic perspectives, the perceptions of outsiders and the perceptions of insiders, the scientific logic behind an observed behavior, and its underlying cultural logic. Bringing Native Americans into the process, using the ethnographic record as a means of getting a sense of the range of behaviors and perceptions that humans are capable of, and mining all of these sources for structured analogies (not strict analogies) to test against the archaeological record, are long overdue (but nonetheless things that we always knew that we should be doing).

The promise of new perceptions and how they might be applied in the context of research at Hickory Bluff have been mentioned quite frequently, and I hope that there is follow through. The papers presented today have yet to fully realize this promise.

Some examples: I'm looking forward to seeing how sweat lodge ritual and its archaeological signature get used in interpreting features at Hickory Bluff. Ulus or semi-lunar ground knives are a symbolically loaded artifact with very interesting spatial distributions. There are compilations of distributional data for these artifacts that supplement the ones noted by Egghart and Shields,

including speculation about their potential meaning. Where contexts are controlled, they appear to date somewhere between 2500 BC and 1000 BC, curiously corresponding with the timing of a postulated Algonquin migration from the circum Great Lakes area based upon linguistic data. The size, shape, and use of soapstone tempered pottery might be considered as symbolic carryovers from pre-ceramic container technologies and how they functioned in society. In the case of ulus and pottery, examining Hickory Bluff data in ever expanding regional contexts will be necessary to achieve any significant interpretive results.

Why not also consider the color of artifacts as potentially meaningful? Are the color of chipped stone artifacts simply a one-to-one reflection of the technologically useful rocks found in local gravel deposits, or are purposeful selections being made of some subset of what's available? Are there correlations between tool type and color? Are certain types of tools only made from a material found on a specific landscape, even though functionally equivalent materials are more widely distributed? In other words, can the use of some raw materials be linked with landscapes that might have symbolic significance rather than strictly economic or functional significance?

The site's location in a drainage basin in which Delmarva Adena is well represented, and in which a signature pottery allows for the recognition of habitations sites, provides an opportunity to explore further the nature of this archaeological culture. Delmarva Adena hints at socially complex societies that are not the norm at this time throughout the Middle Atlantic Region. While I agree with Petraglia and others about the probable nature of this social complexity (big man or nascent tribal organization), I have argued elsewhere that Delmarva Adena's connection with the Ohio Valley and Adena-Hopewell there is not a classic core periphery relationship.

The public outreach associated with the Hickory Bluff project and summarized by Halsall is exemplary and worthy of emulation. It is our responsibility. The public deserves it. I wonder though, if a CRM project, or any archaeological project for that matter, can meet the needs of the many "publics" who have an interest or stake in archaeology? How will we choose which publics get the attention? Who's going to pay for all of this, if I may be crass? The sense that I get from the Hickory Bluff endeavor is that it was a hard thing to predict the level of personnel and resources that would be needed for public outreach before the project was underway. How are these types of things to be budgeted for in proposals, and to what degree will clients and agencies be willing to fund it? In our rush to be all embracing, how will we resolve conflicts of interest that will ultimately crop up? What do you say to the Native Americans who tell you not to dig, to leave it alone, to put the idea of "preservation" back into Historic Preservation programs.

Something that both puzzled and troubled me - traditional cultural historical labels are still employed by all of the presenters, although schemes exist that attempt to organize archaeological data into units that have more meaning than chronological mileposts (notably those of Jay Custer who has repeatedly collated and synthesized data for this part of the region). For example, I'm not sure that I understand what things like the "Early Woodland period" mean anymore, or what they mean to the people who employ them without explanation. The earliest ceramics in the Middle Atlantic Region appear during what is chronologically considered to be the Late or Terminal Archaic, and their acceptance and use across the region appears to be highly variable, even between 1000 BC and 700 BC. A variety of projectile or biface styles overlap and confuse the traditional period boundaries. Lifeways are an elaboration of, not a break from, those